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Attorney Docket:  
54391



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Ward  
  
For: Composition for Protecting Work  
Surfaces from Contamination

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Calvin B. Ward

Signature of person mailing

**PATENT APPLICATION**

Hon. Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

The following documents are transmitted herewith:

(X) original patent application. (X) Utility ( ) Design ( ) continuation-in-part application.

- (X) The Declaration and Power of Attorney. (X) signed ( ) unsigned or partially signed  
(X) 2 sheets of (X) formal drawings ( ) informal drawings  
(X) Small Entity Statement

(X) A check in the amount of \$\_345 to cover the filing fee is enclosed.

Applicants believe that no additional fee is required. However, the Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. Section 1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 23-0424. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 23-0424. This sheet is filed in duplicate.

Calvin B. Ward  
Registration No. 30,896

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**STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

**Docket Number (Optional)**

54391

**Applicant, Patentee, or Identifier:** Ward

**Application or Patent No.:** Not yet assigned

**Filed or Issued:** \_\_\_\_\_

**Title:** Composition for Protecting Work Surfaces from Contamination

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

☒ the specification filed herewith with title as listed above.

☐ the application identified above.

☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

☒ No such person, concern, or organization exists.

☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

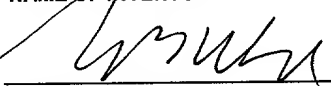
I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

Calvin B. Ward

**NAME OF INVENTOR**

**NAME OF INVENTOR**

**NAME OF INVENTOR**

  
**Signature of inventor**

**Signature of inventor**

**Signature of inventor**

9/6/00

**Date**

**Date**

**Date**

## **Composition for Protecting Work Surfaces from Contamination**

### **Field of the Invention**

5           The present invention relates to electrically charged plastic sheets, and more particularly, to a self-adhering material for protecting surfaces from contamination.

### **Background of the Invention**

10           In environments in which hazard materials such as organic solvents and radioactive materials are used, workbenches and the like are often covered with an absorbent disposable material to prevent the contamination of the workbench in the event of a spill. Protective materials that consist of an absorbent layer with a plastic backing to prevent liquid from reaching the underlying surface are well known in the art. Such materials are sold in rolls and are cut to the correct size at the laboratory. The material is then secured to the workbench with tape to prevent the material from slipping. After the material has served its purpose, the material is removed by peeling off the tape, and the material is discarded in the appropriate trash container.

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20           This solution to the contamination problem has two problems. First, the time needed to secure the protective material to the workbench is significant and requires the installer to have a large supply of masking tape or the like. Second, if excessive liquid is released on the protective material, the absorbent layer becomes saturated, and the excess liquid can seep off of the sides of the material that are nearest to the saturated portion of the sheet before the operator can contain the spill and replace the protective layer.

25           Broadly, it is the object of the present invention to provide an improved protective material that can be applied to workbenches and the like.

30           It is a further object of the present invention to provide a protective material that is self-adhering, and hence, does not require tape or other adhesives.

It is a still further object of the present invention to provide a protective material that is resistant to seepage from the edges.

These and other objects of the present invention will become apparent to those skilled in the art from the following detailed description of the invention and the accompanying drawings.

### **Summary of the Invention**

The present invention is a protective covering constructed from an electrostatically charged sheet having a top and bottom surface and an absorbent layer. The absorbent layer has top and bottom surfaces, the bottom surface of the absorbent layer being bonded to the top surface of the electrostatically charged sheet. The absorbent layer is divided into a plurality of cells for containing liquid spilled on the absorbent layer. The absorbent layer can be constructed from paper, open cell foam, a fibrous mat, or any other absorbent material. In the preferred embodiment of the present invention, the cells are constructed by providing hydrophobic barriers in the absorbent layer. The barriers can be constructed from paraffin, plastic, or any other material that can penetrate the absorbent layer. In one embodiment of the present invention, a hydrophobic layer is bonded to the top surface of the absorbent layer. The hydrophobic layer has a plurality of pores that allow liquid spilled on the hydrophobic layer to penetrate the hydrophobic layer and be absorbed by the absorbent layer.

### **Brief Description of the Drawings**

Figure 1 is a prospective view of a portion of a protective sheet 10 according to the present invention.

Figure 2 is a perspective view of another embodiment 20 of the present invention in which the absorbent layer may be covered with a hydrophobic plastic layer that includes pores.

## **Detailed Description of the Invention**

The present invention may be more easily understood with reference to Figure 1,  
5 which is a prospective view of a portion of a protective sheet 10 according to the present invention. The present invention utilizes a sheet 11 of electrically charged material that is bonded to a layer 12 of absorbent material. The electrically charged material is preferably a plastic that acts both as a moisture barrier and a means for securing the protective sheet to the work bench through electrostatic adhesion. The layer of absorbent material is preferably  
10 divided into cells 14 by impregnating the material with a barrier material 13 in an appropriate pattern. The barriers prevent liquid trapped in a cell from seeping out of the cell, and hence, solve one of the problems discussed above.

The barriers can be constructed from any hydrophobic material that can be introduced  
15 into the absorbent material. For example, paraffin can be applied at an elevated temperature to introduce wax barriers. Similarly, varnish or other hydrophobic material can be introduced in an appropriate solvent which is then evaporated.

The electrostatically charged sheet is preferably a plastic such as a polyester,  
20 polycarbonate, or polypropylene. Plastic sheets of these materials can be charged by placing the sheets in an electric field, which is typically 10,000 volts/cm. Methods for charging such sheets are well known to the art, and hence, will not be discussed in detail here. The sheets may be heated during the charging process to increase the remnant electric field. In the preferred embodiment of the present invention, a polyester film having a thickness between  
25 0.001 inches and 0.01 inches is passed between rollers and subjected to an electric field and corona discharge to charge the film. This film is then attached to the absorbent layer. However, embodiments in which the film is attached to the absorbent layer before being subjected to the electric field and corona discharge can also be practiced.

30 The absorbent layer is preferably constructed from paper that has been impregnated with a hydrophobic material such as paraffin. When placed in contact with the plastic sheet, the stripped paper can be attached by applying an adhesive or by heating the two layers while

pressing the layers together such that the hydrophobic material melts and acts as an adhesive. The thickness of the paper will depend on the anticipated liquid loading and the absorbency of the paper. Paper compositions such as used in paper towels are suitable for most applications.

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The absorbent layer can also be constructed from an open cell foam material or other absorbent material. For example, thin sheets of plastic foam with an open cell structure can be used to provide a high-absorbency material. The plastic foams that can also be charged electrically can also be advantageously utilized. Such foams will retain material electrostatically after the solution in which the material was dissolved has evaporated from the absorbent layer, and thus, prevent the remaining material from being lost as “dust”.

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Similarly, the absorbent layer can be constructed from a fibrous mat such as used in air filters. If the fibers are formed from a plastic that can be charged, the mat can also be charged. Such electrostatically charged mats are well known in the air filter arts, and hence, will not be discussed further here.

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Refer now to Figure 2, which is a perspective view of another embodiment 20 of the present invention in which the absorbent layer may be covered with a hydrophobic plastic layer 21 that includes pores 22. The pores allow a liquid spilled on layer 21 to pass through to the absorbent material while leaving the surface of the protective sheet dry. Materials such as those used in disposable diapers may be utilized for the top layer.

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Various modifications to the present invention will become apparent to those skilled in the art from the foregoing description and accompanying drawings. Accordingly, the present invention is to be limited solely by the scope of the following claims.

WHAT IS CLAIMED IS:

1. A protective covering comprising:

an electrostatically charged sheet having a top and bottom surface; and

an absorbent layer having top and bottom surfaces, said bottom surface of said absorbent layer being bonded to said top surface of said electrostatically charged sheet, said absorbent layer being divided into a plurality of cells for containing liquid spilled on said absorbent layer.

2. The protective covering of Claim 1, wherein said absorbent layer comprises paper.

3. The protective covering of Claim 1, wherein said absorbent layer comprises an open cell foam.

4. The protective covering of Claim 3, wherein said foam is electrostatically charged.

5. The protective covering of Claim 1, wherein said absorbent layer comprises a fibrous mat.

6. The protective covering of Claim 5, wherein said fibrous mat is electrostatically charged.

7. The protective covering of Claim 1, wherein said absorbent layer comprises a plurality of hydrophobic barriers, said hydrophobic barriers defining said cells.

8. The protective covering of Claim 1 further comprising a hydrophobic layer bonded to said top surface of said absorbent layer, said hydrophobic layer having a plurality of pores therethrough, said pores allowing liquid spilled on said hydrophobic layer to penetrate said hydrophobic layer and be absorbed by said absorbent layer.

## Composition for Protecting Work Surfaces from Contamination

### ABSTRACT

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A protective covering constructed from an electrostatically charged sheet having a top and bottom surface and an absorbent layer. The absorbent layer has top and bottom surfaces, the bottom surface of the absorbent layer being bonded to the top surface of the electrostatically charged sheet. The absorbent layer is divided into a plurality of cells for containing liquid spilled on the absorbent layer. The absorbent layer can be constructed from paper, open cell foam, fibrous mat, or any other absorbent material. In the preferred embodiment of the present invention, the cells are constructed by providing hydrophobic barriers in the absorbent layer. The barriers can be constructed from paraffin, plastic, or any other material that can penetrate the absorbent layer. In one embodiment of the present invention, a hydrophobic layer is bonded to the top surface of the absorbent layer. The hydrophobic layer has a plurality of pores that allow liquid spilled on the hydrophobic layer to penetrate the hydrophobic layer and be absorbed by the absorbent layer.

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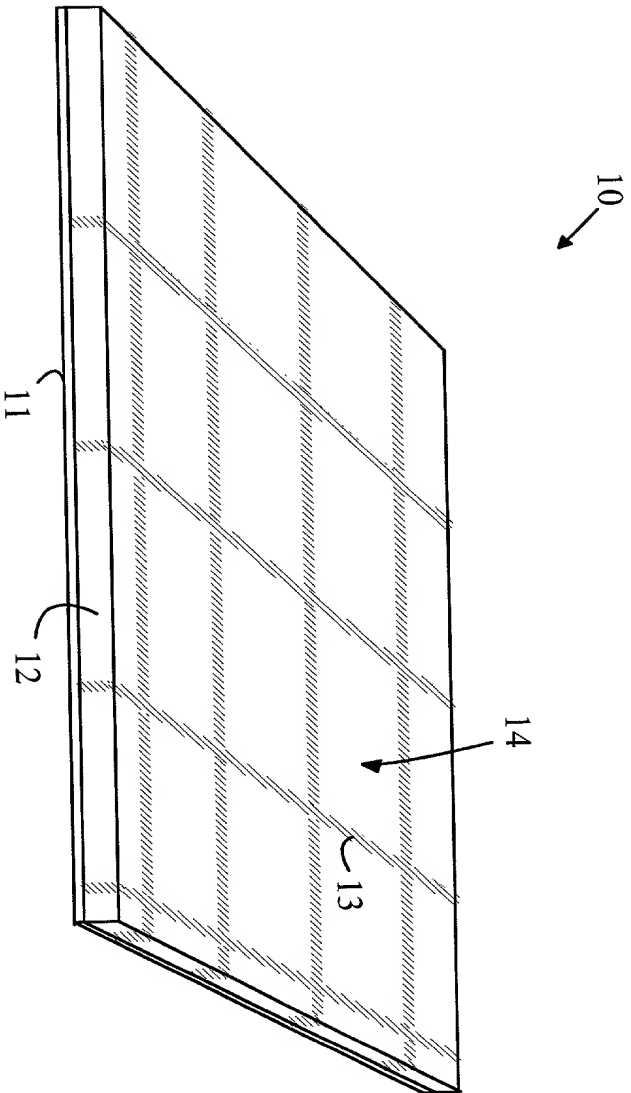


FIGURE 1



## **DECLARATION FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

### **“Composition for Protecting Work Surfaces from Contamination ”**

the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and so identified, and I have also identified below any foreign application for patent or inventor's certificate on this invention filed by me or my legal representatives or assigns and having a filing date before that of the application on which priority is claimed.

<b><u>Number</u></b>	<b><u>Country</u></b>	<b><u>Day/Month/Year Filed</u></b>	<b><u>Priority Claimed - Yes or No</u></b>
none			

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

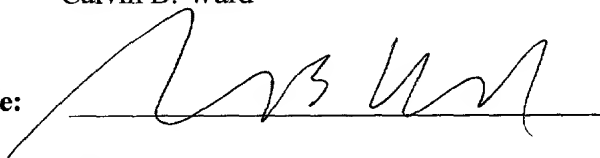
<b><u>Application Serial No.</u></b>	<b><u>Filing Date</u></b>	<b><u>Status</u></b>
none		

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint Calvin B. Ward (Reg. No. 30,896), with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith and request that all correspondence and telephone calls in respect to this application be directed to The Law Offices of Calvin B. Ward, 18 Crow Canyon Court, Suite 305, San Ramon, CA 94583, Telephone No. (925) 855-0413.

**Full name of first joint inventor:** Calvin B. Ward

**Inventor's signature:**



**Date:**

9/6/00

**Residence and Post Office Address:** 9580 Crow Canyon Road  
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**Citizenship:** U.S.A.